

Ecological site R048AA231CO Dry Mountain Loam Gunnison Basin LRU

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Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

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Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:** A few rills on slopes less than 10 percent. Rills may be more defined on slopes of 15 to 25 percent, especially following intense storms and fire. More rills will be present after extended periods of drought.

2. **Presence of water flow patterns:** Slight. Few water patterns; short, unconnected flow patterns. Flow patterns present only after an intense weather event. The length and number of flow patterns increase after wildfires and extended periods of drought. Flow patterns are more apparent on slopes of more than 15 percent.

3. **Number and height of erosional pedestals or terracettes:** Slight. No pedestals or terracettes caused by water are in the reference community phase. Wind-caused pedestals are rare and commonly only present after wildfires and extended periods of drought. The additional water from intense storms may result in pedestals on the steeper slopes.

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):** Commonly, 25 to 35 percent of the ground is bare. Extended drought and other disturbances may increase the percentage of bare ground.

5. **Number of gullies and erosion associated with gullies:** Rare and when drainages are present they are stabilized with native vegetation and should show no active signs of erosion. On steeper slopes there may be an occasional gully, depending on soil texture, slope steepness and length.
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6. **Extent of wind scoured, blowouts and/or depositional areas:** Some wind scouring may occur in areas where the surface is not rough from rock or other fragments. Significant wind erosion may occur after a wildfire or extended periods of drought.
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7. **Amount of litter movement (describe size and distance expected to travel):** Litter commonly is evenly disturbed across the site, but it is slightly thicker under the shrub canopy. Litter movement consists primarily of redistribution of fine litter (herbaceous plant material) associated with flow paths. Movement is expected to be short-lived and minimal. Most movement occurs after wildfires, extended periods of drought, and other disturbances. High-intensity thunderstorms may increase the amount of movement and the size of material moved.
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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):** The average stability class rating is 2 to 3 in areas with no plant cover on the soil surface and 3 to 5 in areas with plant cover.
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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):** The A horizon is pale brown loam to very gravelly loam and granular. It typically is 0 to 4 inches deep and well drained.
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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:** The canopy of grasses, forbs, and shrubs, basal cover, and inherent interspaces between plants allow for some overland flow and loss of infiltration. Extended periods of drought in spring reduce the abundance of cool-season bunchgrasses, resulting in decreased infiltration and increased runoff following intense storms.
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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):** None.
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12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**
- Dominant: Dominant Native Perennial Cool Bunchgrasses >>> Dominant Native Non-Sprouting Shrubs >= Dominant Native Perennial Forbs
- Sub-dominant: > Occasional Native Non-Sprouting Shrubs >> Dominant Native Perennial Cool Rhizomatous > Occasional Native Resprouting Shrubs >
- Other: Occasional Native Warm Rhizomatous >= Occasional Native Warm Bunchgrasses
- Additional:
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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):** Slight mortality or decadence of shrubs and grasses during and after periods of drought. Extended periods of drought typically result in a relatively high mortality rate in short-lived species. The mortality of shrubs is limited to periods of severe drought. Sagebrush species are affected by a lack of snow in winter. A combination of wildfire and extended periods of drought would cause more mortality for several years than would either disturbance by itself.
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14. **Average percent litter cover (%) and depth (in):** The litter cover is 15 to 30 percent at a depth of 0.25 inch. No litter remains after a wildfire or extended periods of drought. Depending on climate and plant production, post-disturbance levels of litter will be in the site within one to five growing seasons.
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):** 500 pounds per acre in low precipitation years, 650 pounds in average precipitation years, and 800 pounds in above-average precipitation years. After extended periods of drought or during the first growing season following wildfire, production may be significantly reduced by 250 to 500 pounds per acre or more.
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16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:** Cheatgrass.
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17. **Perennial plant reproductive capability:** All plant species should be able to reproduce if water is available. All plants should be vigorous and healthy. Plants should produce seed heads and vegetative tillers, etc. Weather, wildfire, natural disease, interspecies competition, wildlife, and insects may temporarily limit reproduction.
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